

REMARKS

Claims 1-4 and 6 are all the claims pending in the application.

Claims 1-4 and 6 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Yoshikawa et al in view of JP 10-053010 (JP '010).

Applicants respectfully traverse the rejection for at least the following reasons.

Present independent Claim 1 is directed to a rubber-based composite material to be arranged between a carcass and a sidewall for reinforcing a tire comprising a non-woven fabric; a coating of a metal or metallic compound reactable with sulfur, the coating being formed on the surface of filaments constituting the non-woven fabric by a physical vapor deposition (PVD) method or a chemical vapor deposition (CVD) method; and a rubber that adheres to the coating forming a continuous layer and covering the non-woven fabric. The application of this rubber-based composite material to a sidewall portion of a tire can enhance the rigidity of the sidewall portion and also improve the driving stability of the tire.

Yoshikawa et al discloses a rubbery composite material comprising a substrate coated with a thin film of zinc, copper, cobalt or an alloy thereof by dry plating, and a rubber composition bonded thereto. As the Examiner concedes, Yoshikawa et al does not disclose or suggest the use of a nonwoven substrate.

JP '010 discloses use of a non-woven fabric as reinforcement for a tire in order to enhance both vibration riding comfort and driving stability. JP '010 further discloses that if the adhesiveness between the filament fiber of the non-woven fabric and a rubber is insufficient, dip and heat set treatments may be conducted in order to enhance the adhesiveness.

However, as described at page 2, lines 15-21 of the specification of the present application, the adhesiveness of non-woven fabrics cannot be enhanced through application of either the conventional dip treatment wherein organic fiber cords are dipped in a resorcinol-formaldehyde-latex (RFL) adhesive or the plating treatment conventionally applied to steel cords. This is because when a conventional RFL dip or plating treatment is applied for non-woven fabrics, the non-woven fabrics become clogged to form a film, thus reducing their contact area with the rubber to which the non-woven fabrics are adhered. Therefore, desired effect cannot be obtained.

Applicants submit herewith a Declaration executed by Masato Yoshikawa to demonstrate the unexpected superiority of the present invention and thus further support the patentability of the present invention.

In the Declaration, a non-woven fabric was treated with a conventional dip treatment instead of cleaning and coating with Co. A radial tire was prepared in the same manner as described in the examples in the specification of the present application except for using the above-treated non-woven fabric. The obtained tire is designated as Comparative Example I.

Comparative Example I was evaluated in terms of driving stability and practical durability in the same manner as described in the examples in the specification of the present application. In addition, Comparative Example I and the tires described in the examples (Examples and Comparative Examples) of the specification of the present application were evaluated in terms of vibration-riding comfort. The results together with those contained in Table 2, at page 13 of the specification of the present application are summarized in the following Tables:

		Conventional example	Comparative example	Comparative example I
Results	Driving stability	100	110	113
	Vibration riding comfort	100	138	119
	Practical durability	100	174	183

		Example 1	Example 2	Example 3	Example 4	Example 5	Example 6
Results	Driving stability	118	119	115	113	116	117
	Vibration riding comfort	135	137	132	133	131	129
	Practical durability	180	193	191	182	190	189

As shown in the above Tables, Comparative Example I provided driving stability of 113, vibration riding of 119 and practical durability of 183. In contrast, Examples 1-6 provided driving stability of 113 to 119, vibration riding of 129-137 and practical durability of 180-193. It is clear that the present invention is superior to Comparative Example I at least in terms of vibration riding comfort.

Mr. Yoshikawa concluded that the present invention provides unexpected superior results by applying a non-woven fabric coated with a metallic compound reactable with sulfur by a PVD or CVD method compared to a tire using a conventionally dip-treated non-woven fabric.

Neither Yoshikawa et al nor JP '010 disclose or suggest the above features of the presently claimed invention. Accordingly, Applicants respectfully submit that the comparative

data in the Declaration rebut any *prima facie* case of obviousness over Yoshikawa et al in view of JP '010 and that the rejection should be withdrawn.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

for John Callahan Reg. No. 32,607
Fang Liu
Registration No. 51,283

Date: June 29, 2005